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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,791	03/18/2004	Juan Chuang	MR1035-1433	4599
4586	7590	12/01/2005	EXAMINER	
ROSENBERG, KLEIN & LEE 3458 ELLICOTT CENTER DRIVE-SUITE 101 ELLIOTT CITY, MD 21043			NEWTON, JARED W	
			ART UNIT	PAPER NUMBER
			3634	

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/802,791	CHUANG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jared W. Newton	3634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 March 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-3 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-3 is/are rejected.
- 7) Claim(s) 1 is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 18 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                         |                                                                             |
|-------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                    | Paper No(s)/Mail Date. _____.                                               |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
|                                                                                                                         | 6) <input type="checkbox"/> Other: _____.                                   |

## **DETAILED ACTION**

### ***Drawings***

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Specifically, Figure 3 lacks reference characters. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are requested in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

The disclosure is objected to because of the following informalities:

- Line 17 of page 2 should recite, "...cost are unfavorably affected."
- Line 16 of page 4 should recite, "...the amount of waferss placed..."

Appropriate correction is required.

***Claim Objections***

Claim 1 is objected to because of the following informalities: It is suggested that the claim be changed to recite, "A reformed wafer boat comprising a plurality of trenches..." (line 1), and "...the first interval being longer than..." (line 5). Appropriate correction is respectfully requested.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by U.S. Patent No. 6,427,850 to Mendiola.

Mendiola discloses an electronic device workpiece carrier 10 for carrying semiconductor wafers, comprising a body 12, supporting a plurality of wafers W in a plurality of slots or trenches 30 (see FIGS. 1 and 2). Mendiola further discloses a plurality of intervals between said plurality of trenches, wherein said intervals are alternately composed of a first interval d1 and a second interval d2, the first interval being longer than the second interval, and the wafers W placed on the trenches at both ends of the second interval so that the backs B of adjacent wafers W2 and W3 are in a back to back configuration (see FIG. 9).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over '850 to Mendiola as applied to claim 1 above, and further in view of U.S. Patent No. 6,506,256 to Ide.

Mendiola discloses a wafer carrier comprising all of the limitations of claim 1. Mendiola further discloses said carriers being used in semiconductor processes, but does not specifically disclose use in a furnace process, and more specifically, a  $\text{POCl}_3$  doping process. Ide discloses a semiconductor wafer diffusion process comprising a furnace core tube 1 which houses quartz boards 2 for storing semiconductor wafers (see FIG. 2). Ide further discloses  $\text{POCl}_3$  as the diffusion, or doping agent. Ide recites, "The conventional apparatus also has an impurity source container 4 for reserving an impurity source such as  $\text{POCl}_3$  and a mass flow..." (see Column 1, Line 23). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the structure of the carrier as disclosed by Mendiola within the furnace as disclosed by Ide, in the diffusion process as set forth by Ide. The motivation for including a tray within a furnace, as opposed to the individual quartz boards, would be to insert and remove a plurality of wafers at one time, so as to save time, and ensure equal treatment of said plurality of wafers. It is further noted that it is well known and obvious to those of

ordinary skill in the art to employ wafer trays and wafer boats in furnace processes, and specifically POCl<sub>3</sub> doping processes.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jared W. Newton whose telephone number is (571) 272-2952. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Chilcot can be reached on (571) 272-6777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWN  
November 14, 2005



RICHARD E. CHILCOT, JR.  
SUPERVISORY PATENT EXAMINER